SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT
FOR SMOOTHING

ABSTRACT OF THE DISCLOSURE

5   A system and method for a hybrid, variational, user-controlled, 3D mesh smoothing for orphaned shell meshes. The smoothing model is based on a variational combination of energy and equi-potential minimization theories. A variety of smoothing techniques for predicting a new

10   location for the node-to-smooth are employed. Each node is moved according to a specific smoothing algorithm so as to keep element included angles, skew and distortion to a minimum. The variational smoother selection logic is based on nodal valency and element connectivity pattern of the

15   node to smooth. Results show its consistency with both quadrilateral and quad-dominant meshes with a significant gain over conventional Laplacian schemes in terms of mesh quality, stability, user control and flexibility.